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EXAMINER

JONES, HUGH M

ART UNIT

PAPER NUMBER

2123

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. 09/320,303	Applicant(s) Hugh Jones	Aves
	Examiner Hugh Jones	Art Unit 2123



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1)  Responsive to communication(s) filed on May 7, 2002

2a)  This action is FINAL. 2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

4)  Claim(s) 1-25 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-25 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on May 7, 2002 is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

13)  Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some\* c)  None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____	6) <input type="checkbox"/> Other: _____

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paper # 7

## **DETAILED ACTION**

1. Claims 1-25 of U. S. Application 09/320,303, filed 05/26/1999 are presented for examination.

### **Information Disclosure Statement**

2. The apparent attempt to file an information disclosure statement (attachment to paper # 5) fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it is not a proper Information Disclosure Statement. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 C(1).

### **Drawings**

3. **Figure 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated.** See Applicant's Own Admission page 4, paper # 5, specification. See MPEP § 608.02(g).

### **Claim Rejections - 35 USC § 112**

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any

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person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**5. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.** The specification broadly refers to transmission lines. However, the specification does not provide any substantive detail, other than mere reference, to a model, characteristic values, transfer functions, algorithms, distributions, and means for optimization (see claim 1, for example). Applicants also claim “air-spaced transmission line” (claims 5 and 13, for example) but do not disclose such a transmission line in the detailed description of the disclosure.

**6. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.** The specification broadly refers to transmission lines. However, the specification does not provide any substantive detail, other than mere reference, to a model, characteristic values, transfer functions, algorithms, distributions, and means for optimization (see claim 1, for example). Applicants also claim “air-spaced transmission line” (claims 5 and 13, for example) but do not disclose such a transmission line in the detailed description of the disclosure.

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7. Section 2163.02 of the MPEP Standard for Determining Compliance With the Written Description.

"The courts have described the essential question to be addressed in a description requirement issue in a variety of ways. *An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed."* In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), *to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter."* Ralston Purina Co. v. Far-Mar-Co., Inc., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).

Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed. The subject matter of the claim need not be described literally (i.e., using the same terms or in haec verba) in order for the disclosure to satisfy the description requirement. If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application. This conclusion will result in the rejection of the claims affected under 35 U.S.C. 112, first paragraph - description requirement, or denial of the benefit of the filing date of a previously filed application, as appropriate. 220 F.3d 1345, 55 U.S.P.Q.2d (BNA) 1636 (Fed. Cir. 2000)."

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8. The 112 rejections for enablement and written description are separate and distinct issues as it relates to the question of incorporation by reference. A rejection based on the enablement requirement of the statute may not be sustainable in this regard since the general incorporation of a U.S. patent by reference in appellant's specification may be sufficient to indicate what is likely to be known by persons of ordinary skill in the art. Cf. *In re Howarth*, 654 F.2d 103, 210 USPQ 689 (CCPA 1981). *The issue of compliance with the description requirement, however, is another matter entirely.* In this connection, attention is directed to *In re Blaser*, 556 F.2d 534, 194 USPQ 122, 125 (CCPA 1977). The function of the description requirement is to ensure that the applicant had possession, as of the filing date of his application, of the specific subject matter later claimed by him. It is required that the specification describe the invention sufficiently for those of ordinary skill in the art to recognize that the applicant invented the subject matter he now claims. *In re Smythe*, 480 F.2d 1376, 178 USPQ 279, 284 (CCPA 1973). That a person skilled in the art, given the incorporated disclosures, *might* decide to combine the teachings with those explicitly disclosed by Applicants is not a sufficient indication to that person that such is described as a particular feature of appellant's invention. *The doctrine of incorporation by reference is of no avail to applicants in this regard since there is no specific indication in the instant specification of the particular features disclosed by the incorporated references which correspond to those as claimed; nor does the specification identify the specific portions of the patent which applicant may have intended to rely upon to supplement his disclosure.* The purpose of incorporation by reference in an application of matter elsewhere written down is for

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economy, amplification, or clarity of exposition, by means of an incorporating statement clearly identifying the subject matter which is incorporated and where it is to be found. *In re de Seversky*, 474 F.2d 671, 177 USPQ 144, (CCPA 1973).

9. With respect to “means for” claims (see claim 1, for example), see *Atmel Corp. v. Information Storage Device, Inc.*, 198 F.3d 1374 (Fed. Cir. 1999). In *Atmel*, the Federal Circuit reversed summary judgment that a means-plus-function claim was invalid for indefiniteness because the corresponding structure was in an article that had been incorporated by reference. Here, the majority explained that the search for corresponding structure should be done from the vantage point of one skilled in the art (i.e., the structure need not be explicit if it would clear to a skilled artisan). *The court went on to say that the structure supporting the means-plus-function element must appear in the specification. A patent may not rely on a document that is incorporated by reference to support structure corresponding to a means-plus-function limitation in a claim. The structure corresponding to the recited function must be described within the four corners of the patent specification.* The court also discussed the use of extrinsic evidence to construe a means-plus-function claim and to find corresponding structures.

10. The Examiner therefore requests a copy of the computer code so as to determine what constitutes Applicant's invention at the time of filing.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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**12. Claims 8-9, 17-20, 22-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

- “transfer function” (see claims 1 and 3, for example). A transfer function involves two entities (something with respect to something else). The specification does not clarify the meaning of the word.

- “may be defined” (claim 1, limitation c, for example): this is ambiguous.  
- “substantially ... distributed across a range” (claims 8-9, similarly for claims 17-18 - for example): this is ambiguous.

**13. Claims 10-18, 21-25 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.** See MPEP § 2172.01. Applicants have not claimed the details which are necessary for carrying out the optimization.

**14. Claims 1-9 and 19-20, 22-25 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements.** See MPEP § 2172.01. Applicants have not claimed the elements which are necessary for carrying out the optimization.

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**Claim Interpretation**

15. The broadest reasonable interpretation has been given to the claims. Applicants refer to a number of features in the claims which have not been discussed in any substantive detail in the specification. The Examiner will provide the best interpretation, based on the specification, for purposes of prior art rejections.

- *transfer function*: this is not discussed in the “detailed description” of the specification. There is discussion of *s-parameter matrix* methods (page 7, line 20 to page 8, line 10. However, *S-parameter analysis* is only *one type* of transfer function analysis. For purposes of a prior art rejection, “transfer function” is interpreted to be any transfer function as discussed in the prior art as it relates to transmission lines - until such time as “s-parameter” is claimed.

- Applicants also claim “air-spaced transmission line” (claims 5 and 13, for example) but do not disclose such a transmission line in the detailed description of the disclosure. The Examiner therefor interprets that this refers to “intended use” and does not give patentable weight to “air-spaced”. The Examiner also notes lines 13-18, page 7 of the specification, which indicate that Applicants are referring to intended use.

16. Claims 1-9 have been interpreted in view of 35 U.S.C. 112, and *In re Donaldson*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). Reciting the pertinent section of 35 U.S.C. 112, paragraph six:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

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17. With respect to the “means for” claims (claims 1-9), it is interpreted that the structure corresponding to the recited functions is only that which is described within the four corners of the patent specification.

**Claim Rejections - 35 USC § 102**

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

19. **Claims 10-11 and 13-21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fleming-Dahl (F: U. S. Patent 5,218,326 - of record).**

20. *Fleming-Dahl discloses a method of defining component lengths, especially cable lengths, in a radio frequency or microwave system so as to minimize in-phase coupling of voltage reflections in the system involves the use of prime roots of prime numbers as scaling factors which are multiplied with a minimum component length to obtain a list of potential component lengths. The scaled potential component lengths are then screened for accidental relationships with component lengths obtained using lower order roots in order to prevent accidental harmonic relationships from arising in the system, and the resulting screened list is evaluated to ensure that the remaining potential component lengths meet such system requirements as available spans, minimum and maximum component lengths, number of lengths required, and matched Insertion Loss requirements.* In order to screen the scaled potential

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component lengths, windows are constructed around the potential lengths based on component ***manufacturing tolerances***, and subsequently adjusted as necessary.

21. The claims are recited and the correspondence to the prior art is noted.

- **Claim 10** pertains to a method for optimizing the segment characteristics of a segmented transmission line, comprising the steps of modeling the electrical performance of the segmented transmission line, evaluating the model for electrical performance (F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32), and selecting a set of segment characteristics (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61), based on the evaluation, which meets a set of predefined optimization criteria (F: abstract; col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

- **Claim 11** pertains to the method according to claim 10, wherein the set of segment characteristics comprises a respective length of each segment (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

- **Claim 13** pertains to the method according to claim 10, wherein the segmented transmission line comprises an air-spaced coaxial transmission line adapted for transmitting an RF signal, the predefined optimization criteria comprising signal transmission efficiency (F: abstract; col. 1, lines 10-13, col. 2, lines 18-30; ).

- **Claim 14** pertains to the method according to claim 10, wherein a precision of the evaluation exceeds a manufacturing tolerance of the segmented transmission line (F: abstract; figure 1; col. 3, line 64 to col. 4, line 11; col. 6, lines 35-49; col. 6, line 64 to col. 7, line 7; col. 7, line 62 to col. 8, line 20).

- **Claim 15** pertains to the method according to claim 10, further comprising outputting a predicted performance of the segmented transmission line based on the respective segment characteristics (F: abstract; fig. 1-7; col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

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- **Claim 16** pertains to the method according to claim 10, further comprising the step of producing a set of transmission line segments according to the selected segment characteristics (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

- **Claim 17** pertains to the method according to claim 10, wherein a variation in respective segment characteristics is distributed substantially non-incrementally (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

- **Claim 18** pertains to the method according to claim 10, wherein a variation in respective segment characteristics is distributed substantially non-monotonically (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

- **Claim 19** pertains to a segmented transmission line, produced according to claim 16, wherein the segment characteristic comprises a respective segment length and the optimization criteria comprises a minimization of worst case VSWR over a radio frequency band (F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

- **Claim 20** pertains to a segmented transmission line, produced according to claim 16, wherein the segmented transmission line comprises an air-spaced coaxial transmission line adapted for transmitting an RF signal (col. 1, lines 10-13, col. 2, lines 18-30); the segment characteristic comprises a respective segment length (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61) and the optimization criteria comprises a minimization of worst case VSWR over a radio frequency band (F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

- **New claim 21** (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61)

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**Claim Rejections - 35 USC § 103**

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

24. The prior art will be applied and analyzed as per the Graham Deere Inquiries. The claims will then be recited and the correspondence to the prior art noted.

25. **Claims 1-9, 12 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over [Fleming-Dahl “F” (U. S. Patent 5,218,326 - of record) in view of Huss “H”].**

26. *Fleming-Dahl* discloses a *method of defining component lengths, especially cable lengths, in a radio frequency or microwave system so as to minimize in-phase coupling of voltage reflections in the system involves the use of prime roots of prime numbers as scaling factors which are multiplied with a minimum component length to obtain a list of potential component lengths. The scaled potential component lengths are then screened for accidental*

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*relationships with component lengths obtained using lower order roots in order to prevent accidental harmonic relationships from arising in the system*, and the resulting screened list is evaluated to ensure that the remaining potential component lengths meet such system requirements as available spans, minimum and maximum component lengths, number of lengths required, and *matched Insertion Loss requirements*. In order to screen the scaled potential component lengths, windows are constructed around the potential lengths based on *component manufacturing tolerances*, and subsequently adjusted as necessary.

27. Transfer functions are inherent in the analysis and characterization of transmission lines.

However, Fleming-Dahl does not explicitly teach transfer functions.

28. *Huss discloses “A mathematical and lumped-element model for multiple cascaded lossy transmission lines with arbitrary impedances and discontinuities.” Huss further discloses a mathematical and lumped-element model for multiple cascaded lossy transmission lines with arbitrary impedances and discontinuities is presented. The mathematical model is developed using the ABCD matrix representation of a two-port network. The lumped element model uses pole-zero approximations to cable transfer functions.*

29. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Fleming-Dahl with the teaching of Huss for the following reasons:

- Huss discloses (section II, page 1844) that “*There are several methods for describing a 2-port network. The most common method is to use S-parameters. However, for cascaded*

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*netwroks, the ABCD matrix is preferred...".* Note that a transmission line is a two-port and is considered as such during analysis and simulation of transmission lines.

30. The claims are recited and the correspondence to the prior art is noted.

- **Claim 1** pertains to a computer model for describing a performance of a segmented transmission line having a plurality of segments, each segment having a transfer function, comprising:

(a) means for storing at least one characteristic value the transfer function of a respective segment of the segmented transmission line (**H: abstract; sections II-III; section V, pg. 1847**);

(b) means for storing information relating to at least one algorithm, said algorithm being for determining the effect of a respective characteristic value and sequence of transmission line segments on a performance of the overall segmented transmission line (**F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61**); and

(c) means for adjusting a characteristic value (**F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61**),

whereby a set of characteristic values may be defined for respective transmission line segments (**F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61**), having an optimized performance in view of the at least one algorithm (**F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32**).

**Claim 2** pertains to the model according to claim 1, wherein the characteristic value is a length of a respective transmission line segment (**F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61**).

**Claim 3** pertains to the model according to claim 1, wherein the at least one algorithm calculates a transfer function of the segmented transmission line (**H: abstract; sections II-III; section V, pg. 1847**).

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**Claim 4** pertains to the model according to claim 1, wherein the adjusting means allows adjustment of all characteristic values, the adjustments being based on a determined performance of the segmented transmission line (F: abstract; figs. 1-7; col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

**Claim 5** pertains to the model according to claim 1, wherein the segmented transmission line comprises an air-spaced coaxial transmission line adapted for transmitting an RF signal, the performance comprising signal transmission efficiency (F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

**Claim 6** pertains to the model according to claim 1, wherein a precision of the algorithm exceeds a manufacturing tolerance of the segmented transmission line (F: abstract; figure 1; col. 3, line 64 to col. 4, line 11; col. 6, lines 35-49; col. 6, line 64 to col. 7, line 7; col. 7, line 62 to col. 8, line 20).

**Claim 7** pertains to the model according to claim 1, further comprising means for outputting a predicted performance of the segmented transmission line based on the respective characteristic values (F: abstract; figs. 1-7; col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

**Claim 8** pertains to the model according to claim 1, wherein the respective characteristic values are substantially non-incrementally distributed across a range (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

**Claim 9** pertains to the model according to claim 1, wherein the respective characteristic values are substantially non-monotonically distributed across a range (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

**Claim 12** pertains to the method according to claim 10, wherein the model is evaluated to determine a transfer function of the segmented transmission line (H: abstract; sections II-III; section V, pg. 1847).

- New claim 22 (see claim 1, discussed earlier);

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- New claim 23 (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).
- New claim 24 (F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).
- New claim 25 (F: abstract; figures 1-7; col. 1, line 31 to col. 2, line 17; col. 2, line 41 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61).

**Response to Arguments**

31. Applicant's arguments filed 5/7/2002 have been fully considered but they are not persuasive.

**Response to Arguments - Drawing Objections (pg. 3, paper # 5)**

32. The objection to the drawings for failing to show every feature of the invention specified in the claims is withdrawn in response to paper # 6 (Amended Drawings). Note the objection to newly submitted figure 13.

**Response to Arguments -112(1) Enablement Rejections (pp. 3-6, paper # 5)**

33. Applicant's arguments filed 5/7/2002 have been fully considered but they are not persuasive. Applicants argue (page 4, paper # 5) that Maxwell's equations and their relationship to transmission lines are well known. The Examiner agrees - however, that was not the issue. In any case, and following up on Applicant's argument relating to automobiles and gravity, the Examiner notes that while the laws of gravity may not need to be recited to understand

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automobiles, the relevant teachings about automobiles do, in fact, need to be disclosed. In the present situation, Applicant's specification broadly refers to transmission lines. However, as recited in the 112(1) rejections, *the specification does not provide any substantive detail, other than mere reference, to a model, characteristic values, transfer functions, algorithms, distributions, and means for optimization* (see the limitations in claim 1, for example).

34. Applicants argue that all essential details about transmission lines were known in the art (page 5, paper # 5), but that the prior art does not teach use of an optimization strategy for modifying the physical structures in order to achieve a given result or constraints. However, Applicants have not adequately argued the asserted rejection. Applicants have not explained, for example, how the optimization strategy, as allegedly disclosed in the specification, satisfies the 112 requirements.

35. Applicant's arguments (page 6, paper # 5) relating to "means for" are persuasive as applied to "means for storing", but not to "means for adjusting". The Examiner agrees that a CPU is necessary for the adjusting. However, the CPU must be somehow instructed so as to carry out the *adjusting*. This *adjusting* relates to the optimizing which Applicants argue throughout paper # 5. The Examiner, respectfully, is not persuaded by Applicant's arguments.

**Response to Arguments -112(1) Written Description Rejections (pp. 3-6, paper # 5)**

36. Applicant's arguments filed 5/7/2002 have been fully considered but they are not persuasive. Applicant's argument against the *written description* rejections appears to be the

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same argument as asserted against the *enablement* rejections. As stated in paragraph 8, paper 4, ***the 112 rejections for enablement and written description are separate and distinct issues as it relates to the question of incorporation by reference.*** A rejection based on the enablement requirement of the statute may not be sustainable in this regard since the general incorporation of a U.S. patent by reference in appellant's specification may be sufficient to indicate what is likely to be known by persons of ordinary skill in the art. Cf. *In re Howarth*, 654 F.2d 103, 210 USPQ 689 (CCPA 1981). ***The issue of compliance with the description requirement, however, is another matter entirely.*** In this connection, attention is directed to *In re Blaser*, 556 F.2d 534, 194 USPQ 122, 125 (CCPA 1977). The function of the description requirement is to ensure that the applicant had possession, as of the filing date of his application, of the specific subject matter later claimed by him. It is required that the specification describe the invention sufficiently for those of ordinary skill in the art to recognize that the applicant invented the subject matter he now claims. *In re Smythe*, 480 F.2d 1376, 178 USPQ 279, 284 (CCPA 1973). That a person skilled in the art, given the incorporated disclosures, *might* decide to combine the teachings with those explicitly disclosed by Applicants is not a sufficient indication to that person that such is described as a particular feature of appellant's invention. ***The doctrine of incorporation by reference is of no avail to applicants in this regard since there is no specific indication in the instant specification of the particular features disclosed by the incorporated references which correspond to those as claimed; nor does the specification identify the specific portions of the patent which applicant may have intended to rely upon to supplement his disclosure.*** The

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purpose of incorporation by reference in an application of matter elsewhere written down is for economy, amplification, or clarity of exposition, by means of an incorporating statement clearly identifying the subject matter which is incorporated and where it is to be found. *In re de Seversky*, 474 F.2d 671, 177 USPQ 144, (CCPA 1973). Please see paragraphs 6-10, paper # 4.

**Response to Arguments - 112(2) Rejections (pp. 6-8, paper # 5)**

37. Applicant's arguments filed 5/7/2002 have been fully considered but they are not persuasive.

38. Applicants argue (next to last full paragraph, page 6, paper # 5) in response to the 112(2) against the use of "transfer function", that such functions are well known. The phrase is indefinite because it has many meanings. The Examiner can not determine the meaning from the claims or the specification. It could mean impedance, admittance, reflection coefficient or a host of other relationships between inputs and outputs.

39. Applicant's conclusory arguments (page 6, paper # 5) relating to "may be defined" are not persuasive and are merely attorney argument. Applicants have provided no authority for their conclusion that it "...serves as a true limitation thereon." Please see section 2145 of the MPEP, recited for Applicant's benefit:

"2145 Consideration of Applicant's Rebuttal Arguments

**I. ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS NECESSARY**

Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of

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admissions as prior art. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) (“An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness.”). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.”

Applicant’s secondary argument that replacing “may be defined” with “is defined” is not developed and is simply not persuasive. Note that if “may be defined” were to be replaced with “is defined”, the limitation would then recite:

“Means for adjusting a characteristic value,  
whereby a set of characteristic values *is defined* for respective transmission line segments,  
having an optimized performance in view of the at least one algorithm.”

The Examiner, respectfully, does not see the potential paradox and maintains that the limitation, as currently recited, is indefinite.

40. With respect to arguments (first two full paragraphs, page 7, paper # 5), the issue is that the meaning of “substantially” is unknown, in the context of Applicant’s invention. Applicants have not elucidated the meaning of “substantially.” What constitutes “substantially”?

41. The arguments (page 7, paper #5) relating to “product by process” claims, are persuasive. The Examiner consulted MPEP 2173.05(f) (Reference to Limitations in Another Claim) for guidance. A claim which makes reference to a preceding claim to define a limitation is an acceptable claim construction which should not necessarily be rejected as improper or confusing under 35 U.S.C. 112, second paragraph. *For example, claims which read: “The product*

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***produced by the method of claim 1.*** or “A method of producing ethanol comprising contacting amylose with the culture of claim 1 under the following conditions .....” ***are not indefinite*** under 35 U.S.C. 112, second paragraph, merely because of the reference to another claim. See also *Ex parte Porter*, 25 USPQ2d 1144 (Bd. Pat. App. & Inter. 1992) where reference to “the nozzle of claim 7” in a method claim was held to comply with 35 U.S.C. 112, second paragraph. However, where the format of making reference to limitations recited in another claim results in confusion, then a rejection would be proper under 35 U.S.C. 112, second paragraph.

42. Applicants argue (last full paragraph, page 7, paper # 5) in response to the 112(2) “missing elements” rejections (it is noted that Applicants have not specifically addressed the 112(2) “missing steps” rejections and presumes that Applicants are addressing both types of rejections with their response [i.e., last paragraph, page 7 to line 6, page 8, paper # 5]) that:

“The claims, while broad, are distinct and comprehensible, as well as *complete*. In contrast to the Examiner’s insinuation, there are no gaps in the claims. In particular, it is not believed necessary to claim the details or elements necessary for carrying out the optimization. Any optimization method or apparatus now known or in the future envisioned may be applied to solve the problem at hand. According to the present invention, novelty and non-obviousness reside in the presentation of the problem in such a manner that a variety of optimization schemes and systems may be readily applied.”

43. The Examiner would first like to point out that such arguments are mere attorney argument and are conclusory. Please see section 2145 of the MPEP, recited for Applicant’s benefit:

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**“2145 Consideration of Applicant’s Rebuttal Arguments**

**I. ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS NECESSARY**

Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art. The arguments of counsel cannot take the place of evidence in the record.

*In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) (“An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness.”). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.”

44. The Examiner would also like to point out that *Applicants indeed must claim the details necessary for carrying out the optimization*. The Examiner notes that the title of the application is “*Method for selecting optimized* lengths of a segmented transmission line and a transmission line resulting therefrom”. The Examiner also notes lines 4-14, page 11, specification, wherein Applicants state that it is an object of the invention to provide a *method for optimizing*. Applicant must *particularly point out and distinctly claim the subject matter which applicant regards as the invention*. See section 2172.01 of the MPEP (Unclaimed Essential Matter). A claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be rejected under 35 U.S.C. 112, first paragraph, as not enabling. *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). See also MPEP § 2164.08(c). Such essential matter may include missing elements, steps or necessary structural cooperative relationships of elements described by the applicant(s) as necessary to practice the invention.

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In addition, a claim which fails to interrelate essential elements of the invention as defined by applicant(s) in the specification may be rejected under 35 U.S.C. 112, second paragraph, for failure to point out and distinctly claim the invention. See *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976); *In re Collier*, 397 F.2d 1003, 158 USPQ 266 (CCPA 1968).

45. Applicants are also reminded that they have admitted, in response to 112(1) rejections (pp. 3-7, paper # 5) that the details of transmission lines and their behavior were well known to those skilled in the art at the time of the invention. Applicants now state that

“*Any* optimization method or apparatus *now known* or *in the future envisioned* may be applied to solve the problem at hand. According to the present invention, novelty and non-obviousness reside in the presentation of the problem in such a manner that a variety of optimization schemes and systems may be readily applied.

46. It should be noted that such argument is at odds with the first paragraph of 35 U.S.C. 112, namely that the specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention. In particular, Applicant's assertions imply that there is **subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.** It also implies problems with enablement. A claim drafted with such an interpretation would also be rejected as an Omnibus claim. See MPEP

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2173.05(r) (Omnibus Claim). Some applications are filed with an omnibus claim which reads as follows: A device substantially as shown and described. *This claim should be rejected under 35 U.S.C. 112, second paragraph because it is indefinite in that it fails to point out what is included or excluded by the claim language.* See Ex parte Fressola, 27 USPQ2d 1608 (Bd. Pat. App. & Inter. 1993), for a discussion of the history of omnibus claims and an explanation of why omnibus claims do not comply with the requirements of 35 U.S.C. 112, second paragraph. Such a claim can be rejected using Form Paragraph 7.35. See MPEP § 706.03(d). For cancelation of such a claim by examiner's amendment, see MPEP § 1302.04(b).

47. In any case, consider claim 10, for example. Claim 10 recites a method for optimizing segment characteristics of transmission lines. Applicants appear to arguing (throughout paper # 5) firstly that the transmission line art was well known, secondly that any optimization scheme may be applied and thirdly that the details of the optimization do not have to be claimed. The Examiner is not persuaded by such reasoning. With respect to the argument that the invention is not in the transmission lines or optimization scheme,

“According to the present invention, novelty andnon-obviousness reside in the presentation of the problem in such a manner that a variety of optimization schemes andsystems may be readily applied.”

the Examiner submits that Applicants have not clearly explained (in paper # 5) or claimed how the problem is presented in such a manner to lead to the variety of optimization schemes, as argued.

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**Response to Arguments - 102 Rejections (pp. 8-9, paper # 5)**

48. Applicant's arguments filed 5/7/2002 have been fully considered but they are not persuasive. It is noted that Applicants only provide a short conclusory argument (pg. 8, paper # 5) that the applied art does not anticipate claims 10-11 and 13-20. However, Applicants have not addressed the specific portions of the Fleming-Dalh patent, as indicated in the 102 rejection (paper # 4). Fleming-Dahl discloses a method for optimizing the segment characteristics of a segmented transmission line, comprising the steps of modeling the electrical performance of the segmented transmission line, evaluating the model for electrical performance (F: col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32), and selecting a set of segment characteristics (F: abstract; figures 1-7; col. 2, line 66 to col. 4, line 20; col. 4, line 52 to col. 6, line 19; col. 7, lines 23-61), based on the evaluation, which meets a set of predefined optimization criteria (F: abstract; col. 1, line 31 to col. 2, line 17; col. 2, lines 41-54; col. 3, lines 10-20; col. 4, lines 14-32).

49. Applicant's conclusory argument (see last sentence, page 8 to line 2, page 9, paper # ) is not understood. Applicants conclusion that the Fleming-Dalh procedure is somehow not "optimum" is not persuasive. Please see section 2145 of the MPEP, recited for Applicant's benefit:

**“2145 Consideration of Applicant’s Rebuttal Arguments**

**I. ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS NECESSARY**

Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of

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admissions as prior art. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) (“An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a *prima facie* case of obviousness.”). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.”

**Response to Arguments - 103 Rejections (pp. 9-10, paper # 5)**

50. Applicant's arguments filed 5/7/2002 have been fully considered but they are not persuasive.
51. Applicants have only alleged (pg. 9, paper # 5) that “*...it is not seen that the combination has any logic or motivation.*” by apparently arguing (paragraph 2, page 9, paper # 5) that the modification of the Fleming-Dalh teaching by the use of transfer functions as taught by Huss is not enabled. Applicants are reminded that they have not disclosed *transfer function*, or *how it is to be used* in the context of Applicant’s invention, in the “detailed description” of the specification. Applicants are also reminded that transfer functions are inherent in the design, characterization and analysis of transmission lines.
52. Applicants are also reminded that 112(1) rejections were applied stating that *the specification does not provide any substantive detail*, other than mere reference, to a *model, characteristic values, transfer functions, algorithms, distributions, and means for optimization* (see claim 1, for example). The Examiner notes that Applicant’s general argument against the 112(1) rejections was that such features were known to those in the art.

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53. It is respectfully submitted that the Huss teaching of transfer functions as used to modify the teaching of Fleming-Dalh is *at least as enabling as that disclosed in Applicant's disclosure*, wherein Applicants are *silent* on the subject of transfer functions, in the detailed description of the invention. Huss discloses (section II, page 1844) that "*There are several methods for describing a 2-port network. The most common method is to use S-parameters. However, for cascaded networks, the ABCD matrix is preferred...*". Note that a transmission line is a two-port and is considered as such during analysis and simulation of transmission lines.

54. The Examiner further notes Applicant's argument (third full paragraph, page 9, paper # 5) that the sequence of lengths need not be and generally will not be, monotonic. *This also means that the sequence can be monotonic*. This issue is also related to the 112(2) rejection against the use of the word "substantially".

55. Applicant's argument (page 10, paper # 5) is noted. The Examiner submits that arguments relating to computational complexity are mere attorney argument (see section 2145 of the MPEP). Applicants then admit (second sentence, page 10, paper # 5) that the present invention has been previously carried out manually. However, mere automation of a well known process is insufficient to distinguish over the prior art. See *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958) (Appellant argued that claims to a permanent mold casting apparatus for molding trunk pistons were allowable over the prior art because the claimed invention combined "old permanent-mold structures together with a timer and solenoid which automatically actuates the known pressure valve system to release the inner core after a

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predetermined time has elapsed.” The court held that broadly providing an automatic or mechanical means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art.).

**Conclusion**

56. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

57. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

58. **Any inquiry concerning this communication or earlier communications from the examiner should be:**  
**directed to:**

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Dr. Hugh Jones telephone number (703) 305-0023, Monday-Thursday 0830 to 0700 ET, *or* the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

**mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 308-9051 (for formal communications intended for entry)  
*or* (703) 308-1396 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Dr. Hugh Jones

October 2, 2001



DR. HUGH M. JONES  
PATENT EXAMINER  
ART UNIT 2123